#### YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

## Diesel Fired Emergency Internal Combustion Engine Emission Evaluation

**ENGINEER:** 

Alex Huth

ATC # C-12-130

SIC Code # 8221

COMPANY NAME:

University of California, Davis

UTM E 608.8 km UTM N 4266.2 km

**ENGINE LOCATION:** 

The engine will be located at Tercero Student Housing - Building #2, Zone E(TBD), CAAN 4979 in Davis. The engine will not be located within 1,000 feet of a K-12 school and is not subject to the

requirements of H&S 42301.6.

PROPOSAL:

The applicant is proposing to install a diesel fired emergency internal combustion (IC) engine.

The facility is currently operating under Title V Operating Permit F-00454-22, proposed December 4, 2012. This evaluation will serve as both the District emission evaluation and the Title V Statement of Basis. This evaluation reflects only the requirements pertaining to C-12-130. Emission units that are not affect by this proposal were evaluated in the original Statement of Basis or the subsequent iterations and will not be reviewed in this evaluation.

The changes to the Title V permit will also include administrative amendments.

**PROCESS:** 

The engine is used to power an emergency generator.

FLOW DIAGRAM:

None required.

**IDENTIFICATION:** 

P-56-12

**EQUIPMENT:** 

385 BHP diesel fired John Deere IC engine, Model No. 6090HF484, Serial No. TBD, Model Year

2012, EPA Certified Tier III Engine

**CONTROL EQUIPMENT:** 

Aftercooler and turbocharger

#### **APPLICATION DATA:**

<b>Operating Schedule</b>	<u>Units</u>	Formula Symbol	Reference
Max. Daily Operation =	24 hours/day	Td	Applicant
Max. 1st Quarter Operation =	200 hours/quarter	T1	Applicant
Max. 2nd Quarter Operation =	200 hours/quarter	T2	Applicant
Max. 3rd Quarter Operation =	200 hours/quarter	Т3	Applicant
Max. 4th Quarter Operation =	200 hours/quarter	T4	Applicant
Max. Yearly Operation =	200 hours/year	Ту	Applicant

Engine Data	<u>Units</u>	Formula Symbol	Reference
Maximum BHP Rating =	385 BHP	HP	Manufacturer's Data
Exhaust Volume =	1,911 ACFM	EV	Manufacturer's Data
Exhaust Temperature =	1,617 Degrees Rankine (F+460)	) ET	Manufacturer's Data
Hourly Fuel Consumption =	17.6 Gallons	FT	Manufacturer's Data

#### **ASSUMPTIONS:**

	<u>Units</u>	Formula Symbol	Reference
Sulfur Content of Fuel =	0.0015 %	SC	CARB Certified Diesel
Standard Temperature =	528 Degrees Rankine (F+460	) ST	STAPPA-ALAPCO, Pg. 1-7 (5/30/91)
Moisture Content =	10 %	PM	STAPPA-ALAPCO, Pg. 1-7 (5/30/91)
BTU Content =	19,300 BTU/lb	BC	AP-42, Table 3.4-1(a) (10/96)
Density =	7.1 lb/gallon	DE	AP-42, Table 3.4-1(a) (10/96)

Diesel Particulate ControlUnitsFormula SymbolReferenceParticulate Controls =NoApplicant

Baseline Reduction =	0 %	CE	Manufacturer's Data

<b>EMISSION FACTORS:</b>		<u>Units</u>	Formula Symbol	Reference
	VOC =	0.09 g/bhp-hr	EFvoc	SCAQMD ICE Cert. List
	CO =	0.70 g/bhp-hr	EFco	SCAQMD ICE Cert. List
	NOx =	2.60 g/bhp-hr	EFnox	SCAQMD ICE Cert. List
	SOx =	0.0055 g/bhp-hr	EFsox	AP-42, Table 3.4-1 (10/96) *
	PM10 =	0.11 g/bhp-hr	EFpm	SCAQMD ICE Cert. List **

<sup>\*</sup> Only the emission factor listed in Table 3.4-1 is used since it assumes all fuel bound sulfur is converted to SOx.

#### **CALCULATIONS:**

1. Determine the Permitted Diesel Fuel Limits:

Daily Diesel Limit = Td * FT =	422 gallons
1st Quarter Diesel Limit = T1 * FT =	3,520 gallons
2nd Quarter Diesel Limit = T2 * FT =	3,520 gallons
3rd Quarter Diesel Limit = T3 * FT =	3,520 gallons
4th Quarter Diesel Limit = T4 * FT =	3,520 gallons
Yearly Diesel Limit = Ty * FT =	3,520 gallons

2. Determine Dry Standard Cubic Feet of Exhaust:

Formula Symbol SCFM

DSCFM Exhaust = EV \* ST/ET \* (100%-PM) = 561.6 dscfm

3. Determine Yearly MMBtu combusted in Engine for Toxics:

Yearly MMBtu = Ty \* FT \* DE \* BC \* (1 MMBtu/1,000,000 Btu) = 482.3 MMBtu/year

#### **EMISSION CALCULATIONS:**

1. Determine VOC Emissions:

Max Daily VOC Emissions = Td * HP * EFvoc * (1 lb/453.6 g) =	1.8 lb/day
1st Quarter VOC Emissions = T1 * HP * EFvoc * (1 lb/453.6 g) =	15 lb/quarter
2nd Quarter VOC Emissions = T2 * HP * EFvoc * (1 lb/453.6 g) =	15 lb/quarter
3rd Quarter VOC Emissions = T3 * HP * EFvoc * (1 lb/453.6 g) =	15 lb/quarter
4th Quarter VOC Emissions = T4 * HP * EFvoc * (1 lb/453.6 g) =	15 lb/quarter
Max Yearly VOC Emissions = Ty * HP * EFvoc * (1 lb/453.6 g) * (1 ton/2,000 lb) =	0.01 tons/year

2. Determine CO Emissions:

Max. Daily CO Emissions = $1d * HP * EFco * (1 lb/453.6 g) =$	14.3 lb/day
1st Quarter CO Emissions = T1 * HP * EFco * (1 lb/453.6 g) =	119 lb/quarter
2nd Quarter CO Emissions = T2 * HP * EFco * (1 lb/453.6 g) =	119 lb/quarter
3rd Quarter CO Emissions = T3 * HP * EFco * (1 lb/453.6 g) =	119 lb/quarter
4th Quarter CO Emissions = T4 * HP * EFco * (1 lb/453.6 g) =	119 lb/quarter
Max. Yearly CO Emissions = Ty * HP * EFco * (1 lb/453.6 g) * (1 ton/2,000 lb) =	0.06 tons/year

3. Determine NOx Emissions:

Max. Hourly NOx Emissions = HP * EFnox * (1 lb/453.6 g) =	2.2 lb/hour
Max. Daily NOx Emissions = Td * HP * EFnox * (1 lb/453.6 g) =	53.0 lb/day
1st Quarter NOx Emissions = T1 * HP * EFnox * (1 lb/453.6 g) =	441 lb/quarter
2nd Quarter NOx Emissions = T2 * HP * EFnox * (1 lb/453.6 g) =	441 lb/quarter
3rd Quarter NOx Emissions = T3 * HP * EFnox * (1 lb/453.6 g) =	441 lb/quarter
4th Quarter NOx Emissions = T4 * HP * EFnox * (1 lb/453.6 g) =	441 lb/quarter
Emissions = Ty * HP * EFnox * (1 lb/453.6 g) * (1 ton/2,000 lb) =	0.22 tons/year

4. Determine SOx Emissions:

Max. Yearly NOx

max. Hourly SOx Emissions = HP " EFSox " (1 lb/453.6 g) =	0.0 lb/hour
Max. Daily SOx Emissions = Td * HP * EFsox * (1 lb/453.6 g) =	0.1 lb/day
1st Quarter SOx Emissions = T1 * HP * EFsox * (1 lb/453.6 g) =	1 lb/quarter

<sup>\*\*</sup> All particulate matter is assumed to be less than 1 micrometer aerodynamic diameter (AP-42, Section 3.3).

2nd Quarter SOx Emissions = T2 * HP * EFsox * (1 lb/453.6 g) =	1 lb/quarter	
3rd Quarter SOx Emissions = T3 * HP * EFsox * (1 lb/453.6 g) =	1 lb/quarter	
4th Quarter SOx Emissions = T4 * HP * EFsox * (1 lb/453.6 g) =	1 lb/quarter	
Max. Yearly SOx Emissions = Ty * HP * EFsox * (1 lb/453.6 g) * (1 ton/2,000 lb) =	0.00 tons/year	
5. Determine PM10 Emissions:		
Max. Hourly PM10 Ems. = HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	0.1 lb/hour	
Max. Daily PM10 Ems. = Td * HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	2.2 lb/day	
1st Quarter PM10 Ems. = T1 * HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	19 lb/quarter	
2nd Quarter PM10 Ems. = T2 * HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	19 lb/quarter	
3rd Quarter PM10 Ems. = T3 * HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	19 lb/quarter	
4th Quarter PM10 Ems. = T4 * HP * EFpm * (1 lb/453.6 g) * (100%-CE) =	19 lb/quarter	
Yearly PM10 Ems. = Ty * HP * EFpm * (1 lb/453.6 g) * (1 ton/2,000 lb) * (100%-CE) =	0.01 tons/year	
6. Determine Particulate Matter Emission Concentration:		
PM Conc. = [PM lb/hr] * (7,000 grains/lb) * (1 hr/60 min) * (1/SCFM) =	0.02 gr/dscf	
7. Determine SOx Emission Concentration:		
SOx % = [SOx lb/hr] * (385 scf/lb-mole) * (lb-mole/64 lb) * (1 hr/60 min) * (1/SCFM) * 100% =	0.0001 %	
8. Determine Particulate Matter Emission Rate:		Formula <u>Symbol</u>
PM Emission Rate = Ty * HP * EFpm * (1 year/8,760 hrs) * (1 hr/3,600 sec) * (100%-CE) =	0.0003 grams/sec	ER

#### **RULE & REGULATION COMPLIANCE EVALUATION:**

#### District Rule 2.3-Ringelmann

This rule specifies the allowable opacity limit for all sources operating in the District.

Compliance Status: The rule applies to any visible emissions at the stationary source. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and is included in the current California State Implementation Plan (SIP). The source is currently in compliance with the requirements of the rule.

**Requirement:** A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three (3) minutes in any one hour which is:

- a. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or
- b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection 301.2 a. of this rule.

**Permit Condition:** The permit holder shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one hour which is:

- a. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart; or
- b. Greater than 20% opacity. [District Rule 2.3/C-12-130]

#### **District Rule 2.5-Nuisance**

This rule requires that sources are not a public nuisance.

**Compliance Status:** The rule applies to all emission units at the stationary source. The source is currently in compliance with the requirements of the rule.

**Permit Condition:** The Permit Holder shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.

A condition will not be placed on the ATC, but will be added to the PTO upon implementation.

[The permit condition is federally enforceable because it derives from District Rule 2.5 - Nuisance which is currently part of the SIP. The

District is taking steps to remove District Rule 2.5 from the SIP. Once the U.S. Environmental Protection Agency (EPA) has taken final action to remove District Rule 2.5 from the SIP, this permit condition will become State-enforceable only.]

#### **District Rule 2.11-Particulate Matter**

This rule specifies the allowable particulate matter (PM) emission concentration at standard conditions. For the purpose of this evaluation, the PM emissions are considered to be 100% PM10 (PM with an aerodynamic diameter of 10 microns or less).

**Compliance Status:** The proposed IC engine is subject to this rule. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and included in the current SIP.

**Requirement:** A person shall not release or discharge into the atmosphere, from any single source operation, dust fumes or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.

As shown above in Emission Calculations #6, the PM concentration is expected to be in compliance with this requirement.

Emission Concentration (gr/dscf)	Allowable (gr/dscf)	Compliance
0.02	0.1	Yes

The requirements of the SIP can be subsumed by the Authority of District Rule 3.4, New Source Review. P-56-12 is also subject to the federally applicable PM emission limit of 2.2 lbs/day (established by Rule 3.4, Section 409.2).

Permit Condition: PM10 emissions shall not exceed 2.2 lb/day, 19 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.01 tons/year. [District Rule 3.4/C-12-130]

# **District Rule 2.12-Section A-Sulfur Compounds**

This rule specifies the allowable sulfur dioxide and particulate matter combustion contaminant emission concentrations at standard conditions. For the purposes of this evaluation, the sulfur oxide (SOx) emissions are considered to be 100% SO2.

Compliance Status: The proposed IC engine is subject to this rule. The rule applies to any source operation which emits, or may emit sulfur gaseous emissions and particulate matter combustion contaminants. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and included in the current SIP. The proposed engine is currently in compliance with the requirements of the rule.

**Requirement:** A person shall not discharge into the atmosphere from any single source of emission whatsoever, any one or more of the following contaminants, in any state or combination thereof, in excess of the following concentrations at the point of discharge:

- A. Sulfur compounds calculated as sulfur dioxide (SO2) 0.2%, by volume at standard conditions.
- B. Particulate Matter Combustion Contaminants: 0.3 grains per cubic foot of gas calculated to 12 percent of carbon dioxide (CO2) at standard conditions.

As shown above in Emission Calculations #7, the sulfur concentration (in percent) is expected to be in compliance with the requirement. Compliance with the particulate limit is demonstrated in Calculation #6 (See 2.11).

Emission Concentration (% SOx as SO2)	Allowable (% SOx as SO2)	Compliance
0.0001	0.2	Yes

The requirements of the SIP can be subsumed by the Authority of District Rule 3.4, New Source Review. P-56-12 is also subject to the federally applicable SOx emission limit of 0.1 lbs/day (established by Rule 3.4, Section 409.2).

**Permit Condition:** SOx emissions shall not exceed 0.1 lb/day, 1 lb/1st, 2nd, 3rd, and 4th calendar quarter, and negligible tons/year. [District Rule 3.4/C-12-130]

#### <u>District Rule 2.16 - Fuel Burning Heat or Power Generators</u>

This rule specifies the allowable sulfur dioxide, nitrogen oxides calculated as nitrogen dioxide, and combustion particulate limits for non-mobile fuel burning equipment for a heat or power generating unit in the District.

**Compliance Status:** The IC engine is subject to this rule. The version of the rule used in this evaluation is the rule adopted on October 1, 1971 and included in the current SIP. The proposed engine is currently in compliance with the requirements of the rule.

**Requirement:** A person shall not build, expand, or operate any non-mobile fuel burning equipment for a heat or power generator unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one or more of the following rates:

1. 200 pounds per hour of sulfur compounds, calculated as sulfur dioxide (SO2);

- 2. 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO2);
- 3. 40 pounds per hour of combustion particulate derived from the fuel. [SIP approved version of District Rule 2.16]

Pollutant	<u>Allowable</u>		Actual		Compliance
SOx	200	lb/hr	0.0	lb/hr	Yes
NOx	140	lb/hr	2.2	lb/hr	Yes
PM	40	lb/hr	0.1	lb/hr	Yes

**Subsuming Demonstration:** The requirements of the SIP can be subsumed by the Authority of District Rule 3.4, New Source Review. P-56-12 is also subject to the federally applicable SOx emission limit of 0.1 lbs/day, NOx emission limit of 53.0 lbs/day and particulate emission limit of 2.2 lbs/day (established by Rule 3.4, Section 409.2).

**Permit Condition:** SOx emissions shall not exceed 0.1 lb/day, 1 lb/1st, 2nd, 3rd, and 4th calendar quarter, and negligible tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** NOx emissions shall not exceed 53.0 lb/day, 441 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.22 tons/year. [District Rule 3.4/C-12-130]

Permit Condition: PM10 emissions shall not exceed 2.2 lb/day, 19 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.01 tons/year. [District Rule 3.4/C-12-130]

#### **District Rule 2.32-Stationary Internal Combustion Engines**

The purpose of the rule is to limit emissions of nitrogen oxides (NOx) and carbon monoxides (CO) from stationary internal combustion engines. The rule applies to any stationary internal combustion engines rated at more than 50 brake horsepower, operated on any gaseous fuel, including liquid petroleum gas, or diesel fuel. The rule shall not apply to engines used directly and exclusively for agricultural operations necessary for the growing of crops or the raising of fowl or animals.

**Compliance Status:** The IC engine is subject to this rule. The version of the rule used in this evaluation was adopted on October 10, 2001 and is part of the current SIP. The engine will have limited hours per year for maintenance operations and 200 hours per year for total use, and is therefore exempt from the rule (except Section 503) pursuant to Section 110.3. Section 503 requires that the source maintain a log of the engine's operating hours and that the log be retained for two years.

**Requirement:** An owner or operator claiming an exemption under Section 110.2 or 110.3 of this Rule shall maintain a log of operating hours for each engine. The log of operating hours shall be retained for two years and be made available to the Air Pollution Control Officer upon request.

**Subsuming Demonstration:** Title 17 CCR Section 93115-Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines, requires the owner or operator to maintain logs (see below). The District Rule 3.8, Federal Operating Permits requirement of Section 302.6.b requires records be retained for a period of five (5) years. The log and record-keeping requirements of Rule 2.32 will be subsumed by ATCM, Rule 3.4 and 3.8 requirements.

**Permit Condition:** The Permit Holder shall not operate the IC engine more than 200 hours per calendar year. [District Rule 3.4, §110.2/C-12-130]

**Permit Condition:** The Permit Holder shall maintain a monthly log of usage that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation;
- c. Hours of operation for emission testing to show compliance with Title 17 CCR, Section 93115.6(a)(3) and 93115.6(b)(3);
- d. Initial start-up hours; and
- e. Fuel use through the retention of fuel purchase records which indicate that the fuel used in the IC engine is CARB certified diesel fuel or an approved ATCM compliant alternative fuel. [District Rule 3.4, §402 and Title 17 CCR, Section 93115.10(f)(1)/C-12-130]

**Permit Condition:** The Permit Holder shall retain the log for a minimum of 60 months (5 years) from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site and made immediately available to the District staff upon request. Log entries made from 25 to 60 months from most recent entry shall be made available to District staff within 5 working days from request. [District Rule 3.8, §302.6, District Rule 3.4 and Title 17 CCR, Section 93115.10(f)(2)/C-12-130]

#### **District Rule 3.1-General Permit Requirements**

The purpose of this rule is to provide an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits.

**Compliance Status:** The source has satisfied the provisions of General Permit Requirements. The rule applies to all emission units at the stationary source. The version of the rule used in this evaluation was adopted on February 23, 1994 and is part of the current SIP. The General Permit Requirements are shown below.

**Permit Condition:** No person shall build, erect, alter, or replace any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants, without first obtaining an authorization to construct from the Air Pollution Control Officer as specified in Section 401 of District Rule 3.1. [District Rule 3.1, §301.1]

**Permit Condition:** No person shall operate any facility, article, machine, equipment, or other contrivance, for which an authorization to construct is required by District Rules and Regulations without first obtaining a written permit from the Air Pollution Control Officer. [District Rule 3.1, §302.1]

**Permit Condition:** No person shall operate any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, without obtaining a permit from the Air Pollution Control Officer or the Hearing Board. [District Rule 3.1, §302.2]

Permit Condition: To assure compliance with all applicable regulations, the Air Pollution Control Officer may impose written conditions on any authorization to construct or permit to operate. The Air Pollution Control Officer may, after 30-day notice to the permittee, add or amend written conditions on any permit upon annual renewal to ensure compliance with and enforceability of any applicable rule or regulation. Additional provisions, as required by Title V of the Federal Clean Air Act, for the reopening of permits are specified in Rule 3.8, FEDERAL OPERATING PERMITS. Commencing work or operation under such a revised permits shall be deemed acceptance of all of the conditions so specified. [District Rule 3.1, §402]

**Permit Condition:** The owner or operator of any facility, article, machine, equipment, or other contrivance for which a permit to operate is in effect shall notify the District office whenever a breakdown, malfunction, or operational upset condition exists which would tend to increase emissions of air pollutants or whenever any operating condition contrary to any provision of the permit to operate exists. Such notice shall be given to the District no later than four hours after occurrence during regular workday hours or no later than two hours of the District workday following an occurrence not during regular District workday hours. The notice shall provide the District information as to causes and corrective action being taken, with a schedule for return to required operating conditions. [District Rule 3.1, §405.3]

#### **District Rule 3.4-New Source Review**

This rule applies to all new stationary sources and emissions units and all modifications to existing stationary sources and emissions units which are subject to Rule 3.1, General Permit Requirements, and which, after construction or modification, emit or may emit any affected pollutants. This rule shall not apply to prescribed burning of forest, agriculture or range land, road construction or any other non-point source common to timber harvesting or agricultural practices. The purpose of this rule is to provide for the review of new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct to such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

**Compliance Status:** The source has satisfied the provisions of New Source Review. The New Source Review requirements will be imposed on the Authority to Construct (ATCs) issued to the source. The version of the rule used in this evaluation was adopted on August 13, 1997 and is part of the current SIP.

	PROPOSED EMISSION SUMM	MARY FOR NEW	OR MODIFIE	D PERMIT	
	Daily		Yea	arly	
VOC	1.8 lb		0.01	tons	Use for annual billing
CO	14.3 lb		0.06	tons	Use for annual billing
NOx	53.0 lb		0.22	tons	Use for annual billing
SOx	0.1 lb		0.00	tons	Use for annual billing
PM10	2.2 lb		0.01	tons	Use for annual billing
		Quarterly			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	
VOC (Ib)	15	15	15	15	
CO (lb)	119	119	119	119	
NOx (lb)	441	441	441	441	
SOx (lb)	1	1	1	1	
PM10 (lb)	19	19	19	19	

Previous quarterly potential to emit for modified permit\*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	0	0	0	0
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

<sup>\*</sup> This is a new emissions unit, therefore the previous potential to emit (PTE) is zero.

Historic	potential	emissions fe	or modified	nermit*
111310116	puteritiar	GIIII GOIUI GI	u illualitea	Delliii

	<u>1st</u>	<u>2nd</u>	3rd	<u>4th</u>
VOC (lb)	0	0	0	0
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

<sup>\*</sup> This is a new emissions unit, therefore the historic PTE is zero.

Pollutant	<u>Trigger</u> (lb/day)	BACT Proposed (lb/day)	Quarterly Increase	BACT Trigger
VOC	10	2	Yes	No
CO	250	14	Yes	No
NOx	10	53	Yes	Yes
SOx	80	0	Yes	No
PM10	80	2	Yes	No

#### **OFFSETS**

# Quarterly permitted emissions for other permits at the stationary source\*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	13,315	13,367	13,480	13,548
CO (lb)	207,733	209,636	<b>2</b> 11,813	212,103
NOx (lb)	51,157	51,306	51,734	52,020
SOx (lb)	7,548	7,554	7,562	7,564
PM10 (lb)	10,565	10,626	10,707	10,731

<sup>\*</sup> Per Policy 28, the calculated PTE for all other permitted units not including emergency use IC engines (see QPTE sheet).

# Quarterly permitted emissions for the stationary source including proposed emissions\*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	13,315	13,367	13,480	13,548
CO (lb)	207,733	209,636	211,813	212,103
NOx (lb)	51,157	51,306	51,734	52,020
SOx (lb)	7,548	7,554	7,562	7,564
PM10 (lb)	10,565	10,626	10,707	10,731

<sup>\*</sup> Per Policy 28, since the proposed IC engine is to be used for emergency purposes, the unit's proposed PTE will not be included in the facility's total quarterly PTE calculations.

	Offset triggers			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	7,500	7,500	7,500	7,500
CO (lb)	49,500	49,500	49,500	49,500
NOx (lb)	7,500	7,500	7,500	7,500
SOx (lb)	13,650	13,650	13,650	13,650
PM10 (lb)	13,650	13,650	13,650	13,650

### Quantity of offsets required \*

	<u>1st</u>	2nd	3rd	<u>4th</u>
VOC (lb)	15	15	15	15
CO (lb)	119	119	119	119
NOx (lb)	441	441	441	441
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

\* The engine meets the requirements of District Rule 3.4, Section 110 and is exempt from the above calculated offset requirements.

#### MAJOR MODIFICATION

Facility Total Potential to Emit*	Major Source Thresholds
26.26 TPY VOC	25 TPY VOC
404.11 TPY CO	100 TPY CO
87.24 TPY NOx	25 TPY NOx
5.08 TPY SOx	100 TPY SOx
17.81 TPY PM10	100 TPY PM10

<sup>\*</sup> See QTPE sheet.

Last five year emission aggregate*	Major Modification Thresholds
2.11 TPY VOC	25 TPY VOC
3.98 TPY CO	100 TPY CO
9.39 TPY NOx	25 TPY NOx
0.03 TPY SOx	40 TPY SOx
1.31 TPY PM10	25 TPY PM10

<sup>\*</sup> See five year activity sheet.

Result: The proposed modification is not a major modification

#### **PUBLIC NOTICE**

<u> </u>	<u> </u>
"Increase in historic potential to emit"	Exemption level for notification
15 lb VOC/quarter	7,500 lb VOC/quarter
119 lb CO/quarter	49,500 lb CO/quarter
441 lb NOx/quarter	7,500 lb NOx/quarter
1 lb SOx/quarter	13,650 lb SOx/quarter
19 lb PM10/quarter	13.650 lb PM10/quarter

#### Result: Public notice is not required

**Permit Condition:** VOC emissions shall not exceed 1.8 lb/day, 15 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.01 tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** CO emissions shall not exceed 14.3 lb/day, 119 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.06 tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** NOx emissions shall not exceed 53.0 lb/day, 441 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.22 tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** SOx emissions shall not exceed 0.1 lb/day, 1 lb/1st, 2nd, 3rd, and 4th calendar quarter, and negligible tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** PM10 emissions shall not exceed 2.2 lb/day, 19 lb/1st, 2nd, 3rd, and 4th calendar quarter, and 0.01 tons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** The maximum amount of diesel consumption shall not exceed 422 gallons/day, 3,520 gallons/1st, 2nd, 3rd, and 4th calendar quarter, and 3,520 gallons/year. [District Rule 3.4/C-12-130]

**Permit Condition:** The Permit Holder shall only refuel the IC engine with CARB certified diesel fuel. [District Rule 3.4, Title 17 CCR, Section 93115.5 and 40 CFR Part 60.4207/C-12-130]

**Permit Condition:** The Permit Holder shall not operate the IC engine more than 50 hours per calendar year for maintenance and testing purposes, and such operation shall be scheduled in cooperation with the District so as to limit air quality impact. [District Rule 3.4, §110.1, Title 17 CCR, Section 93115.6(a)(3)(A) and 40 CFR Part 60.4211/C-12-130]

Permit Condition: The Permit Holder shall not operate the IC engine more than 200 hours per calendar year. [District Rule 3.4, §110.2/C-12-130]

**Permit Condition:** The Permit Holder shall not operate the IC engine for the supplying of power to a serving utility for distribution on the grid. [District Rule 3.4, §110.3/C-12-130]

**Permit Condition:** The Permit Holder's operation of the IC engine for reasons other than maintenance purposes shall be limited to actual interruptions of electrical power by the serving utility. [District Rule 3.4, §110.4/C-12-130]

**Permit Condition:** The Permit Holder shall install and maintain a non-resettable hour meter with a minimum display capability of 9,999 hours. [District Rule 3.4, Title 17 CCR, Section 93115.10(d)(1) and 40 CFR Part 60.4209/C-12-130]

**Permit Condition:** The Permit Holder shall maintain a monthly log of usage that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation:
- c. Hours of operation for emission testing to show compliance with Title 17 CCR, Section 93115.6(a)(3) and 93115.6(b)(3);
- d. Initial start-up hours; and
- e. Fuel use through the retention of fuel purchase records which indicate that the fuel used in the IC engine is CARB certified diesel fuel or an approved ATCM compliant alternative fuel. [District Rule 3.4 and Title 17 CCR, Section 93115.10(f)(1)/C-12-130]

**Permit Condition:** The Permit Holder shall maintain the engine and control device according to the manufacturer's instructions or alternate procedures approved by the manufacturer. [District Rule 3.4 and 40 CFR Parts 60.4206 and 60.4211/C-12-130]

**Permit Condition:** The Permit Holder shall retain the log for a minimum of 60 months (5 years) from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site and made immediately available to the District staff upon request. Log entries made from 25 to 60 months from most recent entry shall be made available to District staff within 5 working days from request. [District Rule 3.4, 3.8, §302.6 and Title 17 CCR, Section 93115.10(f)(2)/C-12-130]

#### **District Rule 3.8-Federal Operating Permits**

This rule implements the requirements of Title V of the Federal Clean Air Act as amended in 1990 (CAA) for permits to operate. Title V provides for the establishment of operating permit programs for sources which emit regulated air pollutants, including attainment and non-attainment pollutants.

**Compliance Status:** The Rule was originally adopted on January 26, 1994. The most recent revision dates April 11, 2001 and is part of the current SIP. The source is currently in compliance with the requirements of the rule.

Per Section 102, this rule applies to all major sources, acid rain units subject to Title IV of the Federal Clean Air Act (CAA), solid waste incinerators, and any other sources specifically designated by the rule or US EPA.

The facility is a federal major source due to potential to emit over 25 tons VOC per year, 100 tons CO per year, and 25 tons NOx per year. The facility has an existing Title V Permit. Revisions to the Title V permit will be processed immediately following the approval of this application. The proposed revisions to the Title V permit will concurrently undergo a 30-day public comment period and a 45-day EPA comment period. Enhanced NSR has been requested by the applicant, as allowed by District Rule 3.4. The requirements of this ATC will be incorporated into the Title V permit upon written request from the applicant after all noticing has been done and the project is completed.

The facility's Title V Permit will be issued with all applicable operating, monitoring, and recordkeeping requirements. Per Section 302.6, the source will be required to maintain all required records for a period of five (5) years.

#### **Title V General Requirements - Permit Conditions**

The following conditions will not be placed on the ATC or PTO. These requirements will be included in the Title V Operating Permit only.

#### Permit Condition -Right of Entry:

The permit shall require that the source allow the entry of the District, ARB, or U.S. EPA officials for the purpose of inspection and sampling, including:

- a. Inspection of the stationary source, including equipment, work practices, operations, and emissions-related activity;
- b. Inspection and duplication of records required by the permit to operate; and
- c. Source sampling or other monitoring activities. [District Rule 3.8, §302.10]

#### **Permit Condition - Compliance with Permit Conditions:**

The Permit Holder shall comply with all Title V permit conditions. [District Rule 3.8, §302.11a]

The permit does not convey property rights or exclusive privilege of any sort. [District Rule 3.8, §302.11b]

Non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal. [District Rule 3.8, §302.11c]

The Permit Holder shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit condition. [District Rule 3.8, §302.11d]

A pending permit action or notification of anticipated non-compliance does not stay any permit condition. [District Rule 3.8, §302.11e]

Within a reasonable time period, the Permit Holder shall furnish any information requested by the APCO, in writing, for the purpose of determining:

a. Compliance with the permit; or

...

b. Whether or not cause exists for a permit or enforcement action. [District Rule 3.8, §302.11f]

#### **Permit Condition - Emergency Provisions:**

Within two weeks of an emergency event, the owner or operator shall submit to the District a properly signed contemporaneous log or other relevant evidence demonstrating that:

- a. An emergency occurred;
- b. The Permit Holder can identify the cause(s) of the emergency;
- c. The facility was being properly operated at the time of the emergency;
- d. All steps were taken to minimize the emissions resulting from the emergency; and
- e. Within two working days of the emergency event, the Permit Holder provided the District with a description of the emergency and any mitigating or corrective actions taken; and

In any enforcement proceeding, the Permit Holder has the burden of proof for establishing that an emergency occurred. [District Rule 3.8, §302.12]

#### **Permit Condition -Severability:**

If any provision, clause, sentence, paragraph, section or part of these conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions. [District Rule 3.8, §302.13]

#### **Compliance Certification:**

Requirement: Section 302.14(a) of Rule 3.8 requires "the responsible official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

Streamlining Demonstration: As shown in the following permit conditions, the standard annual compliance certification reporting language of Rule 3.8 (Federal Operating Permits), will be streamlined under the provisions of Rule 3.4 to include specific reporting and submittal dates:

#### **Permit Condition -Compliance Certification:**

The Responsible Official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. The twelve (12) month period will begin on January 1 and end on December 31, and will be due by January 31 for the previous reporting year, unless otherwise approved in writing by the District. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

The compliance certification shall identify the basis for each permit term or condition (e.g., specify the emissions limitation, standard, or work practice) and a means of monitoring compliance with the term or condition consistent with Sections 302.5, 302.6, and 302.7 of Rule 3.8. [District Rule 3.8, §302.14b]

The compliance certification shall include a statement of the compliance status, whether compliance was continuous or intermittent, and method(s) used to determine compliance for the current time period and over the entire reporting period. [District Rule 3.8, §302.14c]

The compliance certification shall include any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to Sections 114(a) and 504(b) of the Federal Clean Air Act. [District Rule 3.8, §302.14d]

#### Permit Condition -Permit Life:

The Title V permit shall expire five years from the date of issuance. Title V permit expiration terminates the stationary source's right to operate unless a timely and complete Title V permit application for renewal has been submitted. [District Rule 3.8, §302.15]

#### **Permit Condition -Payment of Fees:**

An owner or operator shall pay the appropriate Title V permit fees on schedule. If fees are not paid on schedule, the permit is forfeited. Operation without a permit subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to Section 502(a) of the CAA. [District Rule 3.8, §302.16]

#### **Permit Condition -Permit Revision Exemption:**

No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [District Rule 3.8, §302.22]

#### **Permit Condition -Application Requirements:**

An owner or operator shall submit a standard District application for renewal of the Title V permit, no earlier than 18 months and no later than six months before the expiration date of the current permit to operate. [District Rule 3.8, §402.2]

An owner or operator shall submit a standard District application for each emissions unit affected by a proposed permit revision that qualifies as a significant Title V permit modification. The application shall be submitted after obtaining any required preconstruction permits. Upon request by the APCO, the owner or operator shall submit copies of the latest preconstruction permit for each affected emissions unit. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. [District Rule 3.8, §402.3]

An owner or operator shall submit a standard District application for each emissions unit affected by the proposed permit revision that qualifies as a minor permit modification. The application shall be submitted after obtaining any required preconstruction permits. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. In the application, the owner or operator shall include the following:

- a. A description of the proposed permit revision, any change in emissions, and additional applicable federal requirements that will apply;
- b. Proposed permit terms and conditions; and
- c. A certification by a responsible official that the permit revision meets criteria for use of minor permit modification procedures and a request that such procedures be used. [District Rule 3.8, §402.4]

#### **Permit Condition -Permit Reopening for Cause:**

Circumstances that are cause for reopening and revision of a permit include, but are not limited to, the following:

- a. The need to correct a material mistake or inaccurate statement;
- b. The need to revise or revoke a permit to operate to assure compliance with applicable federal requirements;
- c. The need to incorporate any new, revised, or additional applicable federal requirements, if the remaining authorized life of the permit is 3 years or greater, no later than 18 months after the promulgation of such requirement (where less than 3 years remain in the authorized life of the permit, the APCO shall incorporate the requirements into the permit to operate upon renewal); or
- d. Additional requirements promulgated pursuant to Title IV as they become applicable to any acid rain unit governed by the permit. [District Rule 3.8, §413.1]

#### Permit Condition -Recordkeeping:

The permit holder shall record maintenance of all monitoring and support information required by any applicable federal requirement, including:

- a. Date, place, and time of sampling;
- b. Operating conditions at the time of sampling;
- c. Date, place, and method of analysis; and
- d. Results of the analysis. [District Rule 3.8, §302.6a]

The permit holder shall retain records of all required monitoring data and support information for a period of at least five years from the date of sample collection, measurement, report, or application. [District Rule 3.8 §302.6b]

#### **Permit Condition -Reporting Requirements:**

Any deviation from permit requirements, including that attributable to upset conditions (as defined in the permit), shall be promptly reported to the APCO. For the purpose of this condition prompt means as soon as reasonably possible, but no later than 10 days after detection. [District Rule 3.8, §302.7a]

A semi-annual monitoring report shall be submitted at least once every six (6) consecutive calendar months and shall identify any deviation from permit requirements, including that previously reported to the APCO pursuant to Section 302.7(a) of Rule 3.8. Unless otherwise approved in writing by the District, the following shall apply:

- a. The first six (6) month monitoring period will begin on January 1 and end on June 30, and the report will be due by July 31 of the reporting year; and
- b. The second six (6) month period will begin on July 1 and end on December 31, and the report will be due on January 31 of the

following calendar year.

All reports of deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. [District Rule 3.8, §302.7c]

#### **District Rule 3.20-Ozone Transport Mitigation**

This emissions unit is exempt from Rule 3.4, Sections 302 and 303. Therefore, per Section 110.3 of this rule, this application is exempt from the requirements of this rule.

#### Title 17 CCR Section 93115-Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines

This state regulation requires that any new stationary emergency diesel fired engine installed after January 1, 2005 have a PM emission factor less than or equal to 0.15 g/bhp-hr. As proposed, the engine meets this requirement.

The regulation also requires that the engine comply with the following:

- The engine owner or operator will only refuel the engine with California Air Resources Board certified diesel fuel.
- The engine shall not operate more than 50 hours per year for maintenance and testing purposes.
- A non-resettable hour meter shall be installed with a minimum display capability of 9,999 hours.
- The owner or operator is required to maintain a monthly log that lists the following information: emergency hours of operation, maintenance and testing hours of operation, emission testing hours of operation, initial startup hours, and fuel use through fully documented purchase records.
- The log shall be retained for a minimum of 36 months from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on site and made immediately available to the District. Log entries made from 24 to 36 months from the most recent entry shall be made available to District staff within 5 working days from the request.

# NSPS Applicability-40 CFR, Part 60, Subpart IIII, Standards of Performance For Stationary Compression Ignition Internal Combustion Engines

This subpart sets standards for the manufacturers of specified stationary compression ignition engines and owners and operators of stationary compression ignition engines that commence construction or modify or reconstruct their engine after July 11, 2005.

Compliance Status: This subpart applies to manufacturers, owners and operators of specified stationary compression engines. This is an application for an emergency stationary compression engine manufactured after April 1, 2006 and is not a fire pump engine. The source is currently in compliance with the requirements of the Subpart.

**Requirement:** The engine has a displacement less than 10 liters per cylinder, therefore per §60.4205(b) the engine is subject to the emissions standards outlined in §60.4202. As demonstrated below the engine meets this requirement.

	Emission Rate (g/bhp-hr)	Allowable Rate (g/bhp-hr)*	Compliance
NMHC + NOx	2.69	3.0	Yes
CO	0.70	2.6	Yes
PM	0.11	0.15	Yes

\*CFR 89.112

**Streamlining Demonstration:** The Tier III standard for this engine class and category is 3.0 g/bhp-hr for VOC + NOx, 2.6 g/bhp-hr for CO and 0.15 g/bhp-hr for PM. Subpart IIII emission standards are subsumed by the federally enforceable District Rule 3.4 requirement of an EPA certified Tier III engine for P-56-12. The District Rule 3.4 requirements is equivalent to the emission standards outlined in Subpart IIII.

**Permit Condition:** An emergency internal combustion engine, John Deere IC engine, Model No. 6090HF484, 385 Brake Horsepower, to power an emergency generator [District Rule 3.4/C-12-130]

Requirement: In addition the subpart requires the owner/operator to comply with the following for this engine class and category:

- The engine and any control device must be maintained according to the manufacturer's instructions or procedures approved by the manufacturer (§60.4206 and §60.4211).
- The engine diesel fuel must meet the requirements of 40 CFR 80.510 for nonroad diesel fuel (§60.4207).
- The engine must be installed with a non-resettable hour meter prior to start-up (§60.4209).
- Maintenance and readiness testing is limited to 100 hours per year (§60.4211).

**Subsuming Demonstration:** The state requirements for diesel and maintenance testing are more stringent than the federal limit. Therefore, the federal requirement will be met by:

- a. The District Rule 3.4 requirement for the EPA certified Tier;
- b. The Permit Holder shall maintain the engine and control device according to the manufacturer's instructions or alternate procedures

approved by the manufacturer;

- c. The Permit Holder shall only refuel the IC engine with CARB certified diesel fuel;
- d. The Permit Holder shall install and maintain a non-resettable hour meter with a minimum display capability of 9,999 hours;
- e. The Permit Holder shall not operate this internal combustion engine more than 50 hours per calendar year for maintenance and testing purposes, and such operation shall be scheduled in cooperation with the District so as to limit air quality impact.

Permit Condition: The Permit Conditions satisfying these requirements are listed in Section 3.4.

Permit Condition: The Permit Holder shall comply with the applicable requirements of 40 CFR Part 60, Subpart IIII. [40 CFR Part 60, Subpart IIII and 40 CFR Part 63, Subpart ZZZZ]

# NSPS Applicability-40 CFR, Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

The provisions of this subpart apply to owners or operators of stationary reciprocating internal combustion engines at major or area sources of Hazardous Air Pollutants (HAP).

Compliance Status: This subpart applies to engines operating at any stationary source. This is an application for a new compression emergency engine at an area source. Engines constructed or reconstructed after June 12, 2006 meet the rule requirements by demonstrating compliance with Subpart IIII. The source is currently in compliance with the requirements of the Subpart.

**Requirement:** An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

- (1) A new or reconstructed stationary RICE located at an area source;
- (2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;
- (3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions:
- (4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;
- (5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;
- (6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;
- (7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions. [40 CFR 63.6590]

**Permit Condition:** The Permit Holder shall comply with the applicable requirements of 40 CFR Part 60, Subpart IIII. [40 CFR Part 60, Subpart IIII and 40 CFR Part 63, Subpart ZZZZ]

#### District Risk Management Plan and Risk Assessment Guidelines (RMPRAG)

As required by the District's RMPRAG Policy, the project's health risk will be reviewed. The review will evaluate the Hazardous Air Pollutant (HAP) emissions, and because the engine was installed after March 3, 2004, the risk from diesel particulate will also be quantified.

1. HAP Emissions - Excluding Diesel Particulate:

	Emission Factor *	Emissions	Screening Level	Less Than
Pollutants	(lb/MMBtu)	(lb/year)	(lb/year)	Screening
Benzene	9.33E-04	0.45	6.70	Yes
Toluene	4.09E-04	0.20	38,600.00	Yes
Xylenes	2.85E-04	0.14	57,900.00	Yes
Propylene	2.58E-03	1.24	52.00	Yes
1,3-Butadiene	3.91E-05	0.02	1.10	Yes
Formaldehyde	1.18E-03	0.57	33.00	Yes
Acetaldehyde	7.67E-04	0.37	72.00	Yes
Acrolein	9.25E-05	0.04	3.90	Yes
Benz[a]anthracene	1.68E-06	0.00	0.04	Yes
Benzo[b]fluoranthene	9.91E-08	0.00	0.04	Yes
Benzo[a]pyrene	1.55E-07	0.00	0.04	Yes
Dibenz[a,h]anthracene	5.83E-07	0.00	0.04	Yes

Indeno[1,2,3 -cd]pyren	e 3.57E <b>-</b> 07	0.00	0.04	Yes
Naphthalen		0.04	270.00	Yes
* Based on AP-42, Table 3.3-2 (10/	96).			
Since the emissions from the above	HAPs are below the	screening levels, no fu	rther toxic review is require	d of them.
2. Diesel Particulate Cancer Risk	Calculation:			
<u>Di</u>	spersion Data	<u>Units</u>	Formula Symbol	<u>Reference</u>
Residential Emission Conce	entration, X/Q =	583.9 µg/m³	CR	Screen3
Worksite Emission Conce	entration, X/Q ≖	583.9 µg/m³	CW	Screen3
* Conservatively, the District will use risks. As documented, the maximum				dential and worksite receptor
Individual Can	cer Risk (ICR)	<u>Units</u>	Formula Symbol	Reference
Diesel Particulate Uni		3E-04 (unit-less)	UR	OEHHA
Dispersion Annua	lizing Factor *=	0.10 (unit-less)	AF	District
	sidential, ICR =	4.705 in a million	ICR	ER*UR*CR*AF
	Vorksite, ICR =	3.092 in a million	ICW	(46/70)*ER*UR*CW*AF
	aximum, ICR =	4.705 in a million	Max Risk	Max (ICR, ICW)
* The Screen3 dispersion concentra	tion for both the resid	ential and the worksite	receptors are annualized b	y a factor of 0.10.
3. Evaluation of Best Available Co				
		Required (Max Risk > 1 ACT been proposed for	-	es
Based on the T-BACT propos				es o <b>vable</b>
* Effective March 3, 2004, the District manufacturer's PM10 emission certing Particulate Filter (DPF), etc.) to reduce the proposed the project meets the results in the project meets the results are the project meets	fication equal to or les	s than 0.15 gr/hp-hr; or late matter exhaust en	r 2) the use of a particulate nissions to or less than 0.18	control device (e.g. Diesel 5 g/bhp-hr
COMMENTS:	The application does	not trigger offset or pu	ublic notice requirements.	
			BACT Determination 664-1 r this class and category of	
	As discussed above, category of source.	the application also m	eets the T-BACT requireme	ents for this class and
	changes will be maile		Resources Board (ARB) an	and proposed Title V permit d the United States
RECOMMENDATIONS:	Submit for public and	I regulatory review.		
Engineer:			Date:	
Reviewed by:	Frank "	Marin	Date:	1/4/2013

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT
1947 Gelika Court, Strap 108 Diver, CA 92618

Quarterly Potential To Emit Determination **New Source Review** 

Evaluation to be used on existing permits to obtain their quarterly PTE.

SIC Code # 8221

CURRENT APPLICATIONS:

Facility Name: University of California, Davis (UCD)

Location: Main UCD Campus

Engineer: Alex Huth

<u>ATC's</u> C-12-125, C-12-126, C-12-129, C-12-130

PTO's

Date of Initial Quarterly PTE Determination: 04/13/1998
Date of Previous Quarterly PTE Determination: 10/02/2012
Date of Current Quarterly PTE Determination: 12/20/2012

	Emergency IC Engine (111 BHP)	Emergency IC Engine (68 BHP)	Emergency IC Engine (636 BHP)	chiefgency io English (co prie)	Emergency IC Engine (See Plan)	Emergency IC Engine (227 BHP)	Emergency IC Engine (228 BHP)	Emergency IC Engine (643 BHP)	Emergency IC Engine (1,200 BHP)	Emergency IC Engine (750 BHP)	Emergency IC Engine (560 BHP)	-		Pre-pi	Post-pr		Paint Booth	Boller#3	Woodworking (Physical Plant)	Boiler, NG Fired	Boller #2	Boiler, NG Fired	Boiler #1	Boiler	Gasoline Storage & Dispensing	Boiler (180 MMBtwhr)	Incinerator Vet. Lab.	Boiler#2	Boilers	Boiler, NG Fired	Boilers	Boilers	Boiler - Steam Generation	Bollers - Natural Gas	Boilers - Natural Gas	Woodworking (Silo)	Boller	Boiler -Natural Gas for Steam	Boiler	Boiler - Steam Generation	Boller - Steem Concretion	Boiler Steam Generation	Bollers, NG Fired	Gasoline Storage & Dispensing	Boilers (10)	Boiler, NG Fired	Wastewater Treatment Plant (WWTP)	Boiler (2.1 MMBtu/hr)	Landfill Gas Collection & SVE	Boiler, NG Fired	Cooling Towers	Gasoline Storage & Discouning	
	P-109-95(a)	P-109-01	P-108-95(a)	F-108-01	(B)08-701-	D-107 05(a)	02-04(0)	P-102-04/21	P-102-03	P-101-94(a)	P-100-94(a)	P-1-00	Post-project Policy 28 PTE	Pre-project Policy 28 PTF	Post-project SSPE (lb/year)	Pre-project SSPE (lb/year)	D-09 90'-41	B-08-00	D-05-90(24)	01.03	P.01.00	P-90-02	P-90-00	P-89-00	P-84-93(a1)	P-83-06	P-81-89(a)	P-67-98	P-67-00(a)	P-65-03	P-64-03(a)	P-63-06(a)	P-62-96	P-55-00	P-54-96	P-54-90(a)	P-54-00(a)	P-52-00	D-S-ON	P-4/-90	7-40-86	P-44-96	P-44-11	P-42-76(a3)	P-3-00	P-28-03	P-22-00(a)	P-16-08	P-14-98	P-101-03	P-101-03	Permits	Current
	ch	34	25	34	1	1 2	94	2 8	100	119	282	2	13,315	111111111111111111111111111111111111111		1./15	100	4	2	9	n n	<b>=</b> 8	n i	Ź	ω	1,667	24	81	28	27	6	78	23	ಚ	17	0	8	2 7	3 2	3	1 1	22	=	220	å	124	%	25	6.089	נוח כ	- 4/6	(lbs)	OTR 1
	n.	34	25	34	17	0	4	2 6	i i	119	202	2	13,367	12 267		1,/15	ADO'!	3	2	Soci	n i	<b>3</b> 8	Day of	ŝ	ω	1,686	34	82	20	27	10	76	24	ಹ	17	0	36	24 -	; i	39	3	34	ca	220	4	8	78	<b>13</b>	8.157	ga C	4/2	(8)	
•	יוע	34	25	34	77	110	84	2 2	100	119	282	2	13,480	5		1,715	175		12	90/	i k	3 5	7 F G	â	ω	1,704	¥	83	29	28	19	79	24	13	17	0 8	50 !	24 12	: z	8	ij,	34	œ	220	4	2	78	26	8 225	n c	475	(Iba)	VOC Emissions
	л	Ľ	25	4	17	115	84	6	100	110	282	2	13,548			1,715	1.101	-	12	987	ī	3 8	6 6	Ď,	ω .	1,704	4	83	29	28	10	78	24	ជ	17	0 ;	£ !	2 2	: 2	8	햐	34	=	220	4	127	7	26	100 T	л C	475	(ibs)	ons
0.00	2 1	0.02	0.01	0.02	0.01	0.06	0.05	0.00	2 0	0.08	0 14	0.00	26.26	07,070	52,520	3.37	218	0.00	0.02	0.80	0.02	3 8	2 6	9 6	9	3.38	0.07	0.20	0.08	0.05	0.04	0,16	0.05	0.03	0.03	0.00	200	20.02	0.03	0.08	0.03	0.07	0.02	0.44	0.00	0.19	0.16	0.05	3 2	0.00	0.95	(TPY)	Annig
200	n .	91	3,132	91	167	305	680	8/1	4	417	749	183	207,733			0	20,285	-	199	81,719	ã	817,18	0,300	3	- i	1.517	R	B,292	133	218	1,015	248	é i	8	8 4	o 6	20 50	<b>1</b> 8	Ý.	170	82	145	98	0	684	466	0	8 8	3 6	3 -	, ,	(lbs)	210
200	600	91	3,132	91	167	305	680	9/1	417	4 6	749	163	209,638			0	20,418	٥	202	82,613	202	82813	0,473	,	- į	1.533	R :	8,384	438	23	1,027	251	102	3 8	8 9	o 6	3 6	į 8	Si	172	8	147	40	0	872	236	0 !	2 5	2 6	3 0	. 0	(B) 2	7
200	3 9	0.	3,132	91	167	305	680	1/9	417	/40	7.40	183	211,813			-	20,551	0	204	83,506	204	83,506	6,565	,	<b>&gt;</b> {	1 .	2	B,470	443	223	1,038	254	<b>i</b>	71	8 6	0 42	3 5	6 8	55	174	83	148	49	0	679	236	0 6	3 2	3 2	3 0		(adi)	CO Emissions
200	} <u>a</u>	0	3,132	91	167	305	680	179	417	146	740	162	212,103				20,551	٥	204	83,506	204	83,506	8,585		9	20 2	20 1	8,476	1	223	1,038	254	<u> </u>	7 :	7 0	282	3	8	88	174	8	148	88	0	676	477	<b>-</b> 1	3 2	3 6	3 0	0	QTR 4 (lbs)	ons
0.33	0.00	000	1.57	0.05	0.08	0.15	0.34	0.09	0.21	0.37	0.00	404.11	404.11			0.00	26.40	0,00	0.40	163.74	0,40	163.74	16.86	0,00	3 5	207	7 7 7	16.80	0.86	0.44	2.00	0.50	0.20	9 9	0.00	0.00	0.31	0.14	0.11	0.34	0.13	0.20	0.15	0,00	1.36	0.71	0 0	1.82	0.00	0.00	0.00	(TPY)	-
393	707	207	1.861	207	636	1,414	3,086	3,508	3,787	3,4/2	0.12,1	31,10/	51,157			0	9,973		98	13,587	8	13,587	1,384		2,500	3 787	1055	1.022	n .	110	104	251	480	200	30 0	238	202	328	259	810	297	691	<b>a</b>	- ·	791	51 0	- i	708	8	} 0	0	(abs)	
393	707	.,00	1.861	207	636	1,414	3,088	3,508	3,767	3,472	1,2/0	90E/1C	51,306			0	10,052	0	86	13,697	88	13,697	1,396	0	7,00	3 504	1,000	1.03	3 :	121	105	25	485	920	3 6	238	808	328	262	810	300	698	24	0 }	8 8	% e	9 8	917	2	0	0	(lbs)	- 1
393	207	1,001	1 961	207	636	1,414	3,086	3,508	3,767	3,472	6/2/5	51,/34	51,734			0	10,131	0	<b>1</b> 00	13,807	100	13,807	1,407	0	7107	1,000	1000	1014	7 F	9 :	107	2 4	490	30	3 0	241	615	323	205	828	304	707	24	0 8	202	3 0	9 6	927	2	. 0	0	(lbs)	- 51
393	207	1,001	1 881	207	636	1,414	3,086	3,508	3,767	3,472	1,2/5	52,020	52,020			۰	10,131	0	100	13,807	8	13,807	1,407	0	2,617	1,000	1,044	100	1 6	3 9	107	3 40	400	331	i	241	815	328	205	828	304	707	49	0	2 2	3 -	o iğ	927	2	0	0	(lbs)	- Britis
0.20	0.10	Caro	0 0	0 10	0.32	0.71	1.52	1 75	1.80	1.74	0.64	87.24	B7.24	174,480	174,480	0.00	15,83	0.00																				0.66														(TPY)	- 1
0	6	c	0 0	ь ;	18	ᇡ	52	97	61	45	36	7,548	7,548			0	1,088	0	N	2,601	N	2,601	201	0	253		8		٠.	a 1	J N		a N	N	, 0	4	ω	N	63	(Ji	N	O1 -		٠,	n c	٥ ٥		47	_	0	0	QTR 1 (lbs)	
0	6	0	0	b 6	à	15	52	97	61	45	36	7,554	7,554			0	1,689	0	N	2,603	N	2,603	261	0	258	u	8	} 4		o 10	3 K	۵ د	o Na	N	. 0		co	N	N	ÚII	N	on -	- 3	9 0	n -	٠.		47	_	o	٥	(lbs)	
0	đ	c	o	5 6	Ď	<del>6</del>	52	97	61	45	36	7,562	7,582			0	1,680	0	N	2,605	N	2,605	281	0	258	GI	38	; co		a 6	<b>3</b> N		ě N	2	. 0	4	ы	N	N	OI I	N	Ch -	٠ ،	<b>5</b> 0	n _	. 0		46	_	0	۰	81 QTR2 QTR3 ( b) (lbs) (lbs)	SOx Emissi
0	6	0	a	· ā	à i	<del>-</del>	5	97	61	45	36	7,564	7,584			0	1,090	•	2	2,605	2	2,805	261	0	258	w	38	ì ca	, E4	, ,	) N:	. 4	b No	Ŋ	0	4	မ	2	N	OI (	N	Ut -	• •	<b>,</b>	1 6	. 0	ω .	48	_	0	۰	(i) R	- one
0.00	0.00	0.00	0.00	0.01	000	001	0.03	0.05	0.03	0.02	0.02	5.08	5.08			00	1.02	0.00	0.00	.i	0.00	1.55	0.10	0.00	0.51	0.01	0.10	0.01	0.01	2 0	0.00	0.01	000	0.00	0,00	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.00	20.01	0.00	0,00	0.01	0.09	0.00	0.00	0.00	(TPY)	
2	30	02	30	6	3 3	1	383	27	46	246	62	10,565	10,565			gr j	1.992	407	2	1,721	2																	38													П	() () () () () () () () () () () () () (	_
10	30	В	30	25	3 8	100	282	25	8	246	62	10,626	10,626			r i	2.009	412	21	1.730	<u> </u>	1.730	244	0	2,974	87	393	8	38	l la	21	8	8	30	34	8	33	39	22	8 8	36	20 0		9	1 18	0	8	0	7	<b>1</b> 5	•	QTR 2 (lbs)	
Na	30	8	30	25	3	8 8	202	S n	46	246	62	10,707	10,707																									36													٥	(B) 73	M10 Ernise
N	30	œ	30	25	8	200	202	340	6	248	62	10.731	10,731																									39													0	QTR 4	ons
0.00	0.01	0.00	0.01	0.01	0.00	2 5	0.01	001	000	0.12	0.03	17.81	17.81		٩	0.20	2 0	0 9	2 -	9 !	004	2.1	0.45	0.00	5.96	0.18	0.80	0.08	0.08	0.05	0.04	0.12	0.08	0.08	0.07	0.10	0.07	0,08	0.08	0.00	007	0.02	0.00	0.12	0.05	0.00	0.07	0.00	0.01	0.30	0.00	(TPY)	

Emergency is Engine (280 BHF)		IC Engine	IC Engir	Portable Emergency ICE (311 BHP)	Portable Emergency ICE (211 BUB)	IC Engir	IC Engir	Emergency IC Engine (470 BHP)	IC Engli	IC Engir	IC Engi	IC Engi	IC Engi	C Engine	IC Engine	IC Engin	= ;	Emergency IC Engine (415 BHP)	: =	IC Engine (	IC Engine (	IC Engine (	Emergency IC Engine (1.207 BHP)	Portable Emergency (CE (118 RHP)	Emergency IC Engine (1 307 BUD)	cy ic Engine (or	Empression (SECTION SHP)	Emergency IC Engine (1,490 BHP)	-	_	_	·m	-		Emergency IC Engine (337 BHP)		Standby IC Engine (333 BHP)	ı÷	_	-	Emergency IC Engine (80 BHP)		Standby IC Engine (82 BHP)	, ਨ	Emergency IC Engine (170 BHP)	Standby IC Engine (345 BHP)	Emergency IC Engine (998 BHP)	Standby IC Engine (1,120 BHP)	Emergency IC Engine (380 BHP)	Emergency IC Engine (166 BHP)	<del>_</del>	Emergency IC Engine (04 phr)	Emergency IC Engine (124 BHP)	Emergency IC Engine (1,120 BHP)	Emergency IC Engine (52 BHP)	Emergency IC Engine (2,935 EHP)	Emergency IC Engine (82 BHP)	IC Engine	IC Engine	IC Engine	IC Engine	m e	Emergency IC Engine (111 BHP)	ō	Emergency IC Engine (32 BHP)	IC Engine	0
P-90-94(a)	P-9-01(a)	P-89-94(a)	P-88-99	P-87-01	P-84-02	P-83-02	P-82-02	P-74-05	P-72-11	P-71-00	P-7-11	P-7-01	P-69-96(a)	P-69-09	P-68-09	P-67-00	P-86-00	P-61-00	P-59-07	P-59-05	P-54-97	P-54-09	P_53_07	D-82-00/-)	P-51-99(a)	P-51-0/	P-50-99(a)	P-50-07	P-49-07	P-44-10	P-43-10	P-42-97	P-42-10	P-4-09	P-38-05	P-32-98	P-31-98	P-3-09	P-29-96(a)	P-209-95(a)	P-2-09	P-2-00	P-17-98	P-17-09	P-17-02	P-16-98	P-16-09	P-15-04	P-126-95(a)	P-125-95(a)	P-124-95(a)	P-122-95(a)	P-121-95(a)	P-121-03	P-120-95(a)	P-120-03	P-119-95(a)	P-119-03	P-118-95(a)	P-118-03	P-117-95(a)	P-115-03	P-114-95(a)	P-114-02	P-113-95(a)	P-111-01	P-110-95(a)
148	22	139	44	7 G	7	ň	15	21	67	14	27	14	22	33 8	8 -	4 G	o 45	55	26	12	73	23	3 OB	213	59	10	50	85	20	87	2	27	7	<b>1</b> 6	30 73	64	73	340	196	00 1	N	18	40	6	75	47	55 0	128	80	7	o 5	۵ (	ω	75	2 5	374	. ω	16	ω ;	<del>5</del>	4 5	47	¢,	30	n v	6	16
146	22	139	4 (	g 8	7	ī	15	21	67	14	27	# 1	8 8	2 6	y ,	1 0	45	55	26	12	73	21	3 0	612	59	10	59	S	20	87	2	27	7	f 20	3 3	64	73	340	196	64	v =	20	40	0	75	47	J 0	128	80	7	» ē	4	ω	75	N 1	30.4	ω	16	ω ;	10 4	å ŏ	47	()	30	n 10	70	16
146	22	139	4 8	r Si	7	14	119	82	67	r	27	14	3 8	3 6	3 -	4 00	45	55	26	12	73	21	8 2	213	59	10	59	25	20	87	2	27	7	16	33	64	73	3.40	196	64	o 5	28	40	6	75	47	2 2	128	80	7 0	» 10	4	ယ	75	2 14	2 /4	ω	16	ω ;	10	4 6	47	5	30	a 10	70	16
146	22	139	4 5	n on	7	<b>4</b>	118	21	67	14	27	14	ુ ક	3 6	3 ~	4 6	45	55	26	12	73 !	21	, p	213	59	10	59	85	20	87	2	27	7	1 20	73	64	73	340	196	64	» <del>Б</del>	20	40	6	75	47	7 %	128	80	7 0	10	4	3	75	2 420	74	ω	16	<b>6</b> 2 (	i 4	16	47	ŭN	30	, N	70	16
0.07	0.01	0.07	0.02	0.03	0.00	0.01	0.06	0.01	0.03	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.02	0.03	0.01	0.01	0.04	0.1	0.03	0.11	0.03	0.01	0.03	0.04	0.01	0.04	0.00	0.01	0.00	0.01	0.04	0.03	0.04	0.17	0.10	0.03	0.01	0.01	0.02	0.00	0.04	0.02	0.04	0.06	0.04	0.00	0.00	0.00	0.00	0.04	0.70	0.04	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.04	0.0
387	201	370	2.86	110	728	78	417	116	628	246	163	246	241	4 4	91	89	106	1,366	384	48	1.57	165	158	319	158	31	158	343		363	-	-	2 2	-	-	-	-	_	-		617	-			_	73			168	-		-	-	-	204	_	_	_	_	E 48			_	1 100		_	1 2,016
			-	110	728	78	41.	11	62	24	16	24	122		19	88			30.4				158												4 354						7 617		80		_	73			8 163					2 212	4 304			6 306			i 6	ا ا	5	5 6	2		
				110																																										330													383		36	33	95 5	30 3	94 2		2,016 2,
																																																										306					595	8 0	94	250	910
387	001	270	866 866	110	728	78	417	110	328	246	183 C	346	122	46	91	89	106	,366	384	48	573	319	158	319	158	31	158	343	171	363	& !	g 6	8 5	66	354	307	354	679	521	613	617	60	80	48	637	73	275	316	168	1,049 885	1,224	450	383	212	647	212	435	306	383	446	306	133	595	100	294	250	0018
0.19	0 0	6 6	0.05	0.05	0.36	0.04	0.21	0,05	0.31	0.00	0.12	21.2	0.06	0.07	0.05	0.04	0.05	0.68	0.19	0.50	0.08	0.16	0.08	0.16	0.08	0.02	80.0	0.17	90.0	0 18	0.02	0.00	3 0	0.03	0.18	0.15	0.18	0.34	0.08	0.02	0.31	0.03	0.04	0.02	0.32	0.17	0.14	0.16	0.08	0.52	0.61	0.23	0.19	0.15	0.32	0.11	0.22	0.15	0.04	0.22	0.15	0.07	0.30	0.19	0.15	0.13	101
1,798	595	0.107	727	727	1,758	508	3,767	682	2.159	1 910	1,819	6//	1,675	480	195	150	1.032	79	429	275	1,645	2,714	732	2,714	732	131	732	2.950	1.656	1.730	o 8	456	431	512	1,322	1,150	1,323	149	2 418	121	2,002	240	380	356	517	1.756	1,558	3,146	1,558	623 508	727	267	228	2046	7,765	2,044	259	628	1,691	265	628	1,897	354	228	175	2.652	1 108
1,793	777,6	6,117	727	727	1,758	1,41/	3,767	682	2.150	1 8 10	1,819	779	1,675	480	195	150	1,032	79	429	375	1,645	2,714	732	2,714	732	131	732	2 950	1.856	1 730	တန်	456	431	512	1,322	1,150	1,323	149	2 418	121	2,002	240	380	356	517	1,756	1,558	3,146	1,558	623	727	267	228	30/6	7,765	2,044	259	808	1,691	265	628	1,897	354	228	175	2,652	4 100
1,798	1,717	8,15/	727	727	1,758	1,417	3,767	682	7 159	603	1,810	779	1,675	480	195	150	1,032	79	429	376	1,645	2,714	732	2,714	732	<b>1</b>	732	2 950	1 656	1 730	<b>a</b>	456	431	612	1,322	1,150	1,323	149	3 418	121	2,002	240	380	356	517	1,756	1,558	3,146	1,558	623	727	267	228	1/5	7.765	2,044	259	828	1,691	265	628	1,897	354	228	175	2,652	4 400
1,798	1,717	8,157	727	727	1.758	1,417	3,767	682	2 150	/03	1,819	779	1,675	480	195	150	1,032	79	429	5,604	1,645	2,714	732	2,714	732	131	732	2050	1 000	1 770	n g	3/6	431	512	1,322	1,150	1,323	149	7,004	121	2,002	2+0	380	356	517	1,756	1,558	3,146	1,558	623	727	267	229	175	7,765	2,044	259	220	1,691	265	628	1,897	354	228	175	2,652	1 120
0.90	08.0	4.08	0.36	0.36	0.83	0.71	1.83	0.34	108	0.35	0.91	0.39	0.84	0.24	0.10	80.0	0.52	0.04	0.14	2.80	0.82	1.36	0.37	1.36	0.37	0.07	0.37	1 47	0.07	0.00	0.23	0.79	0.22	0.26	0.66	0.58	0.66	0.07	0.50	0.06	1.00	0.12	0.19	0.18	0.44	0.88	0.78	1.57	0.78	0.31	0.36	0.13	0.14	0.09	3,88	1.02	0.13	9 9	0.85	0.13	0.31	0.95	0.18	0.11	0.09	1.33	0
23	22	1,145	25	25	260	40	61	8 0	3 24	-	129	13	2	_	0	0	31	<del>-</del>	12	871	2	ω	10	ω	10	<b>-</b>	<b>5</b> 4	× N	3 K	5 N	s 9		_	26	138	121	139	9 6	3 17	0	288	_	σ.	• •	-	10	94	91	3 0	0	0	0	o 4	2 0	237	91	0 :	; 0	- 62 - 62	0	17	61	9 2	0	0	92	<b>-</b>
<b>3</b> 0	123	1,145	25	25	260	1 4	61	ω c	129	_	129	13	2	_	0	0	31	± -	12	871	2	3	10	ω	10	o ;	15 4	h	, N	) N	<u>ه</u> د		_	26	139	121	130	3 %	. 17	0	288	_	6 -	<u>.</u> c	0 85	2 2	94	91	3 0	0	0	0	0 9	. 0	237	19	0	0	62	0	17	61	o 7	0	0 1	82 c	د
																																																																		92	
23																																																																			
0.01																																																																			
128		-					_	-	-	-		_	_	_	_				_	_		_	-			-	-	-	-	-	-	-	-	-	_	_	_									_				~	_		-	-		~		_	_	_		_		-			
																																																																		5 on	
																																																																		5 cn	
																																																																		8 0	
0.01	0.06	0.11	0.01	0.02	0.01	0.04	0.02	0.03	0.03	0.01	0.03	0.01	0.01	0.01	0.00	200		0.01	0.00	0.21	0.01	0.04	000	000	0.00	0.03	0.03	0.01	0.03	0.00	0.01	0.00	0.01	0.01	0.02	0.02	0 0 0	0.04	0.01	0.00	0.09	0.00	0.00	0.01	0.04	0.01	0.04	0 0	0,00	0.00	0.00	0.00	0.02	0.00	0.06	0.02	004	0.00	0.00	0.00	0.0	0.00	0.01	0,00	0.00	0.00	

.

111 111 111 00	SUMMARY  Pro-prolond SOPE (Industry)		Rule 3.2 Exempt Units Total PTE (lb/year)	C-12-130				Emergency IC Engine (685 BHP) C-12-125	Emergency IC Engine (550 BHP) C-12-89	Emergency IC Engine (207 BHP) P-99-94(a)	Emergency IC Engine (740 BHP) P-96-94(a)	Emergency IC Engine (244 BHP) P-95-94(a)	Emergency IC Engine (150 BHP) P-94-94(a)	Emergency IC Engine (415 BHP) P-92-94(a)	Emergency IC Engine (289 EHP) P-91-94(a)
13,315 13,315 18,016	QTR 1			15	ā	5	7	81	32	64	108	123	6	209	145
13,367 13,367 19,067	QTR 2 (lbs)	١		ä	10	,	7	81	32	64	108	123	15	209	145
13,480 13,480 19,180	QTR 3 (hbs)	5		15	10		7	81	32	64	108	123	16	200	145
13,548 13,548 19,248	QTR 4			15	16		7	00	32	64	108	123	16	209	145
52,520 52,520 26,26 26,28	Annual (TPY)		5,680	0.01	0.01		000	0.04	0.02	0.03	0.05	0.06	0.01	0.10	0.07
207,733 207,733 246,969	QTR 1			119	92		2 ;	110	211	183	783	326	177	554	386
209,636 209,638 248,872	OTR 2			119	92		2	113	211	183	783	326	177	554	306
211,813 211,813 251,048	QTR3 Q			119	92	9	2 :	1 !	211	183	783	326	177	554	306
212,108 212,103 251,338	QTR 4 (lbs)			119	92	8,	2 7	3 !	211	183	79.3	308	177	554	386
404.11 404.11 423.82	s) Annual			0,06	0.05	0.00	0.00	2 2 2	0.30	0.00	0.00	0 16	0.09	0.28	0.19
51,157 51,157 188,405	QTR 1			441	563	CAL	020	3 6	904	1004	2 550	1513	775	2.573	1.792
51,308 51,308 186,553	QTR 2			441	563	981	020	200	804 1,004	1004	3 000	in in	770	2 573	1.792
51,734 51,734 186,981	VOx Emissions QTR 3 (lbs)			441	563	185	078	904	604	0,002	3 5 5 5	1	777	2579	1 792
52,020 52,020 187,287	QTR 4			4	563	195	028	004	1,004	3,002	1,010	4 11 15	770	2 573	1 702
174,480 174,480 87.24 87.24 154,88	Annual (TPY)		135,280	000	0.28	0.10	0.41	0.30	2 20	1.78	0.70	0.70	0.20	1 20	0.00
7,543 7,548 12,850	QTR 1 (lbs)				•	0	2	_	. :	2 2	26	3 1	3 5	2 6	3
	QTR 2			# -		0	2	_		g	2	3 5	3 9	3 2	3
7,562 7,562 12,864	SOx Emissions QTR 3 (lbs)		-			0	2	_	17	8	20	3 2	5 5	2 6	3
7,584 7,584 12,888	QTR 4 (156)		-			0	2	-	17	80	20	72	04	3 6	3
5.08 5.08 7.74	Annual		0.00	3 8	0 00	0.00	0.00	0.00	0.01	0.03	0.01	0.01	20.0	0.01	2
10,585 10,585	QTR 1		19	à ā	16	10	9	34	23	326	107	66	1813	127	
	QTR 2		E	5 6	6	6	9	34	23	326	107	66	183	12/	
10,707 10,707 15,811	PM10 Emissions		9	ā	5	10	9	34	23	326	107	66	183	127	
10,731	QTR 4		BL	8	3	5	9	34	23	326	107	66	83	127	
17.81 17.81 20.25	Annual		0.01	10.0		03	000	0.02	0.01	0.16	0.05	0.03	0,09	0.06	

VOC		VOC CO CO NOx SOx
	Post-Proje	Facilit (lb) (13,315 207,733 51,157 7,548 10,565
	ct Stationary	y Policy 28 Pc Quarter #2 (b) 13,367 208,636 51,306 7,554 10,626
	Post-Project Stationary Source Potential to Emit	Ast-Project Pol Quarter #3 (lb) 13,480 211,813 51,734 7,562 10,707
		Project Potential to Emi Junter #3 Quarier #4 (b) (b) 13,480 13,548 211,813 22,203 7,562 7,564 10,737 10,731
Yearly 52,520 174,480	(SSPE)	(lb) 52,520 808,220 174,480 10,160 35,620
8 8 8		(tons) 26,26 404,11 87,24 5.08 17,81
([b/year]) 20,000 20,000	MITIGATION THRESHOLDS	OFFSET THRESHOLDS  ([be/qt)] 7,500 49,500 7,500 13,860 13,860
	SSPE (	Quarter #1 Above Above Above Below Below
≥≥≥	Comparison	Quarter #2 Above Above Below Below
Annual Above Above	SSPE Comparison to Rule 3.20 Trigge	PTE Comparison to NSR Triggers  Quarter #2 Quarter #3 Quarter #4  Above Above Above Above Above Above Below Below Below Below Below Below
Č	rlagers	Querter #4 Above Above Above Below Below

Date: 12/20/2017

Reviewed by: Frank Osherin

# YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

# New Source Review Last Five Year Activity

Evaluator: Alex Huth

SIC Code #

8221

Facility Name: UC Davis

Date of Initial Five Year Determination: Date of Previous Five Year Determination: Date of Current Five Year Determination: 5/22/1998 10/2/2012 12/20/2012

my manie. Co bavis

Location: UC Davis Main Campus

List of Activities: C-12-125, C-12-126, C-12-129, C-12-130

<u>Equipment</u>	Issued Permits	Date PTO issued	ATC	Date ATC issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
Woodworking	P-95-80(a1)	5/15/2008	C-07-25	12/27/2007	0.00	0.00	0.00	0.00	0.83
Woodworking	P-54-90(a)	5/27/2011	C-07-105	12/27/2007	0.00	0.00	0.00	0.00	0.07
Boilers	P-67-00(a)	4/8/2009	C-08-61	1/8/2009	0.06	0.88	1.05	0.01	0.08
GDF	P-84-93(a1)	4/8/2009	C-08-97	1/8/2009	0.00	0.00	0.00	0.00	0.00
Emergency ICE	P-2-09	4/2/2010	C-08-110	1/8/2009	0.00	0.02	0.06	0.00	0.00
Emergency ICE	P-3-09	6/18/2009	C-08-193	1/8/2009	0.17	0.34	0.07	0.01	0.01
Emergency ICE	P-4-09	4/2/2010	C-08-232(rev)	1/8/2009	0.01	0.07	0.22	0.00	0.01
Emergency ICE	P-16-09	4/2/2010	C-08-254	5/1/2009	0.03	0.17	0.88	0.00	0.01
Emergency ICE	P-17-09	3/17/2010	C-09-16	5/1/2009	0.00	0.02	0.18	0.00	0.00
GDF	P-42-76(a2)	4/1/2010	C-09-57	3/5/2009	0.44	0.00	0.00	0.00	0.00
Emergency ICE	P-66-09	5/24/2010	C-09-127	9/18/2009	0.00	0.04	0.08	0.00	0.00
Emergency ICE	P-67-09	5/24/2010	C-09-128	9/18/2009	0.00	0.05	0.10	0.00	0.00
Emergency ICE	P-68-09	5/24/2010	C-09-129	9/18/2009	0.01	0.07	0.24	0.00	0.01
Emergency ICE	P-54-09	4/2/2010	C-09-139	9/18/2009	0.01	80.0	0.82	0.00	0.01
Emergency ICE	P-69-09	9/9/2010	C-09-161	9/18/2009	0.02	0.06	0.84	0.00	0.01
Boilers	P-63-06(a)	9/24/2010	C-09-210	6/3/2010	0.16	0.50	0.51	0.00	0.04
Emergency ICE	P-42-10	4/20/2011	C-10-17	9/8/2010	0.00	0.03	0.18	0.00	0.00
Emergency ICE	P-43-10	6/1/2011	C-10-38	9/8/2010	0.00	0.02	0.00	0.00	0.00
Emergency ICE	P-44-10	4/20/2011	C-10-45	9/8/2010	0.04	0.18	0.87	0.00	0.03
Emergency ICE	P-7-11	8/2/2011	C-10-105	3/25/2011	0.01	0.08	0.35	0.00	0.01
Boiler	P-54-00(a)	8/9/2011	C-10-93	3/25/2011	0.07	0.58	0.48	0.01	0.10
Boiler	P-44-11	1/9/2012	C-11-62	8/23/2011	0.02	0.15	0.07	0.00	0.02
GDF	P-1-81(a3)	5/1/2012	C-11-80	3/5/2012	0.95	0.00	0.00	0.00	0.00
Emergency ICE	P-72-11	9/27/2012	C-11-89	3/5/2012	0.03	0.31	1.08	0.00	0.03
Emergency ICE	(P-39-12)	-	C-12-89	12/10/2012	0.02	0.11	0.30	0.00	0.02
Emergency ICE	(P-51-12)	-	C-12-125	In Process	0.04	0.06	0.41	0.00	0.00
Emergency ICE	(P-52-12)	-	C-12-126	In Process	0.00	0.05	0.10	0.00	0.00
Emergency ICE	(P-55-12)	-	C-12-129	In Process	0.01	0.05	0.28	0.00	0.01
Emergency ICE	(P-56-12)	i Gr	C-12-130	In Process	0.01	0.06	0.22	0.00	0.01
	TOTAL				2.11	3,98	9.39	0.03	1.31

#### **COMMENTS:**

These permits are sorted by date the ATC was issued. According to Rule 3.4 Section 221, a major modification is calculated based on all creditable increases and decreases from the source over the period of five consecutive years before the application, including the calendar year of the most recent application. Therefore the applicable years are December 2007 through December 2012.

The following changes were made to this worksheet from the last update (10/2/2012):

- (1) Only active PTOs and ATC wiith ATC issue dates within the applicable period have been considered.
- (2) Added emissions from C-12-125, C-12-126, C-12-129, and C-12-130.

Engineer:

Typed Initials

Typed Date

Reviewed by:

Date: \_\_

note: \ /4 [7013

```
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***
```

C-12-130 University of California, Davis

```
SIMPLE TERRAIN INPUTS:
   SOURCE TYPE
                                        POINT
   EMISSION RATE (G/S)
                                      1.00000
   STACK HEIGHT (M)
                                      2.5908
   STK INSIDE DIAM (M)
                                       0.1524
   STK EXIT VELOCITY (M/S)=
STK GAS EXIT TEMP (K) =
AMBIENT AIR TEMP (K) =
                                     49.4418
                                     898.1500
                                    293.1500
   RECEPTOR HEIGHT (M)
                             =
                                       0.0000
   URBAN/RURAL OPTION
                             =
                                        URBAN
   BUILDING HEIGHT (M)
                                       0.0000
                             =
   MIN HORIZ BLDG DÎM (M) =
                                       0.0000
   MAX HORIZ BLDG DIM (M) =
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED. THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

0.0000

1.896  $M^**4/S^**3$ ; MOM. FLUX = 4.633  $M^**4/S^**2$ . BUOY. FLUX =

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\* SCREEN AUTOMATED DISTANCES \*\*\* \*\*\*\*\*\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

	CONC G/M**3) S 			USTK M/S)	MIX HT	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
100. 26 200. 11 300. 14 400. 15 500. 11 600. 96 700. 82 800. 76 900. 62 1000. 53 1100. 47 1200. 47 1300. 38 1400. 35 1500. 32 1600. 29 1700. 27 1800. 25 1900. 23 2000. 22 2100. 20 2200. 19 2300. 18	.000 84.5 58.1 41.8 32.4 14.1 6.69 2.26 0.67 1.39 3.92 7.83 2.82 3.63 5.11 2.14 9.54 9.54 9.55 9.55 9.58	666666666666666	1.0 2.5 1.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	1.0 1 1.0 1 1.0 1 1.0 1 1.0 1 1.0 1 1.0 1 1.0 1 1.0 1 1.0 1	320.0 800.0 480.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0 10000.0	37.21 16.44 25.67 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12 33.12	1.41 16.18 31.49 32.38 41.77 50.96 59.91 68.62 77.09 85.34 93.38 101.21 108.85 116.32 123.61 130.74 137.71 144.54 151.23 157.78 164.21 170.52 176.71 182.80 188.77	1.39 14.35 27.98 21.76 26.76 31.47 35.90 40.07 44.02 47.77 51.34 54.76 58.03 61.18 64.21 67.13 69.96 72.71 75.37 77.96 80.47 82.93 85.32 87.66 89.94	NO NO NO NO NO NO NO NO NO NO NO NO NO N

```
C12130.OUT.TXT
                      6
6
            16.63
15.82
16.63
15.82
6
1.0
15.09
6
1.0
14.41
6
1.0
13.79
6
1.0
13.21
6
1.0
9.263
6
1.0
9.263
6
1.0
7.080
6
1.0
6.324
6
1.0
5.710
6
1.0
5.202
6
1.0
4.775
6
1.0
5.202
6
1.0
4.775
6
1.0
4.412
6
1.0
3.826
6
1.0
3.587
6
1.0
3.886
6
1.0
3.188
6
2.042
6
1.0
3.188
6
2.042
6
1.0
1.184
6
0.9782
6
0.8031
4
1.0
0.7141
4
1.0
   2500.
              16.63
                                      1.0
                                                 1.0 10000.0
                                                                     33.12
                                                                              194.65
                                                                                           92.18
                                                                                                       NO
   2600.
                                                  1.0 10000.0
                                                                              200.43
                                                                     33.12
                                                                                           94.37
                                                                                                       NO
   2700.
                                                 1.0 10000.0
                                                                    33.12
                                                                              206.12
                                                                                           96.51
                                                                                                       NO
   2800.
                                                 1.0 10000.0
                                                                    33.12
                                                                              211.72
                                                                                           98.62
                                                                                                       NO
   2900.
                                                 1.0 10000.0
                                                                    33.12
                                                                              217.23
                                                                                          100.68
                                                                                                       NO
   3000.
                                                 1.0 10000.0
                                                                    33.12
                                                                              222.66
                                                                                         102.71
                                                                                                       NO
                                                 1.0 10000.0
1.0 10000.0
1.0 10000.0
1.0 10000.0
                                                                    33.12
33.12
   3500.
                                                                              248.67
                                                                                         112.34
                                                                                                       NO
   4000.
                                                                              273.02
295.95
                                                                                          121.26
                                                                                                       NO
   4500.
                                                                    33.12
                                                                                         129.61
                                                                                                       NO
   5000.
                                                                    33.12
                                                                              317.66
                                                                                         137.48
                                                                                                       NO
                                                                              338.32
   5500.
                                                 1.0 10000.0
                                                                    33.12
                                                                                         144.93
                                                                                                       NO
   6000.
                                                 1.0 10000.0
                                                                    33.12
                                                                              358.04
                                                                                         152.04
                                                                                                       NO
                                                 1.0 10000.0

1.0 10000.0

1.0 10000.0

1.0 10000.0

1.0 10000.0

1.0 10000.0

1.0 10000.0
   6500.
                                                                    33.12
                                                                              376.94
                                                                                         158.84
                                                                                                       NO
   7000.
                                                                    33.12
                                                                              395.10
                                                                                         165.37
                                                                                                       NO
   7500.
                                                                    33.12
                                                                              412.59
                                                                                         171.65
                                                                                                       NO
   8000.
                                                                    33.12
                                                                              429.48
                                                                                         177.72
183.59
                                                                                                       NO
   8500.
                                                                    33.12
                                                                              445.83
                                                                                                       NO
   9000.
                                                                    33.12
                                                                              461.67
                                                                                         189.28
                                                                                                       NO
                                                                    33.12
   9500.
                                                                              477.05
                                                                                         194.81
                                                                                                       NO
                                                 1.0 10000.0
1.0 10000.0
  10000.
                                                                              492.01
                                                                    33.12
                                                                                         200.19
                                                                                                       NO
  15000.
                                                                    33.12
                                                                              623.70
                                                                                         247.69
                                                                                                       NO
                                                 1.0 10000.0
1.0 10000.0
1.0 10000.0
  20000.
                                                                    33.12
                                                                              733.39
                                                                                         287.50
                                                                                                       NO
            1.184
0.9782
  25000.
                                                                    33.12
                                                                              829.20
                                                                                         322.45
                                                                                                       NO
                                                                    33.12 915.30 353.97
37.21 1552.26 1553.19
37.21 1745.77 1750.03
  30000.
                                                                                                       NO
 40000.
            0.8031
                                                 1.0
                                                         320.0
                                                                                                       NO
 50000. 0.7141
                                                          320.0
                                                 1.0
                                                                                                       NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND
                                                            1. M:
                                             10.0 3200.0 6.05 4.84
     21.
             583.9
                       3
                                      10.0
                                                                                           4.42
                                                                                                      NO
 DWASH=
             MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB
       *******************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
                       MAX CONC DIST TO (UG/M**3) MAX (M)
 CALCULATION
                                                         TERRAIN
 PROCEDURE
                                                         HT (M)
                         _____
SIMPLE TERRAIN 583.9
                                                 21.
                                                                0.
```

#### **BACT DETERMINATION 664-1**

**Emission Unit:** 

Diesel fired emergency internal combustion (IC) engine

Rating:

385 BHP

Facility Name:

University of California, Davis

Mailing Address:

One Shields Avenue, Office of Environmental Health and Safety

Davis, CA 95616

**Contact Name:** 

Aimee Pfohl, Environmental Specialist

Telephone:

(530) 752-4527

**Engineer:** 

Alex Huth

Date:

December 26, 2012

Application #:

C-12-130

I. Proposal:

The applicant is proposing to install a 385 BHP diesel fired emergency IC engine to power an electric generator when electrical power from

the utility grid is interrupted.

II. Applicability:

The proposed emissions for the new emergency engine are shown below.

	VOC	СО	NOx (as NO <sub>2</sub> )	SOx (as SO <sub>2</sub> )	PM <sub>10</sub>
Proposed Emissions	1.8 lb/day	14.3 lb/day	53.0 lb/day	0.1 lb/day	2.2 lb/day
Rule 3.4, Section 301.1 Triggers	10.0 lb/day	250.0 lb/day	10.0 lb/day	80.0 lb/day	80.0 lb/day

The engine is a new emissions unit and results in an increase in quarterly potential to emit for all pollutants. As shown above, BACT is not triggered for VOC, CO, SOx and PM<sub>10</sub> because the proposed emissions do not exceed the trigger levels specified by Rule 3.4, Section 301.1. BACT is triggered for NOx emissions because the proposed emissions exceed the trigger level specified by Rule 3.4, Section 301.1 and the application results in a quarterly increase in potential to emit.

#### III. BACT for NOx:

Per a District Memorandum<sup>1</sup> (dated June 13, 2008), after June 30, 2008 any new emergency diesel-fired engine with a rating greater than or equal to 175 BHP, but less than or equal to 750 BHP, must meet the NOx standards of EPA Tier III engines (effective in 2006). The applicant has provided a copy of the engine manufacturer's guarantee showing that the engine meets the Tier III standard of 3.0 g/bhp-hr for NOx+HC. Therefore, BACT is satisfied for NOx.

<sup>&</sup>lt;sup>1.</sup> BACT for Emergency Diesel Internal Combustion Engines, Engineering Section Policies and Procedures Manual.